

KEY CONCEPT

2.2

Cells capture and release energy.

BEFORE, you learned

- The cell is the basic unit of all living things
- Plant cells and animal cells have similarities and differences
- Plants and animals need energy and materials

NOW, you will learn

- Why cells need energy
- How energy is captured and stored
- How plants and animals get energy

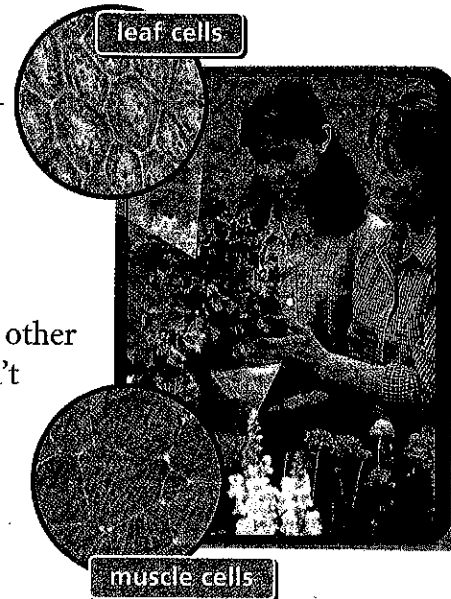
VOCABULARY

chemical energy p. 47
glucose p. 47
photosynthesis p. 48
chlorophyll p. 48
cellular respiration p. 50
fermentation p. 52

THINK ABOUT

What do these cells have in common?

Both muscle cells and plant cells need energy to live. Your muscle cells need energy to help you move and perform other functions. Even though plant cells don't move in the same way that muscles move, they still need energy. How do human muscle cells and plant cells get energy?



All cells need energy.

OUTLINE

Remember to include this heading in your outline of this section.

- I. Main idea
 - A. Supporting idea
 - 1. Detail
 - 2. Detail
 - B. Supporting idea

To stay alive, cells need a constant supply of energy. Animal cells get energy from food, while plant cells get energy from sunlight. All cells use chemical energy. **Chemical energy** is the energy stored in the bonds between atoms of every molecule. To stay alive, cells must be able to release the chemical energy in the bonds.

A major energy source for most cells is stored in a sugar molecule called **glucose**. When you need energy, cells release chemical energy from glucose. You need food energy to run, walk, and even during sleep. Your cells use energy from food to carry out all of their activities.

Think about muscle cells. When you run, muscle cells release chemical energy from glucose to move your legs. The more you run, the more glucose your muscle cells need. You eat food to restore the glucose supply in muscles. But how do plant cells get more glucose? Plants transform the energy in sunlight into the chemical energy in glucose.